WHAT IS CLAIMED IS:

1. A mobile terminal with smart antennas, comprising:

a plurality of groups of radio frequency signal processing modules, for transforming received multi-channel radio frequency signals to multi-channel baseband signals;

a smart antenna processing module, for smart antenna baseband processing said multi-channel baseband signals outputted from said plurality of groups of radio frequency signal processing module so as to combine said multi-channel baseband signals into single-channel baseband signals, according to control information received one-off as said smart antenna processing module is enabled; and

a baseband processing module, for providing said control information to said smart antenna processing module according to data from said smart antenna processing module, and baseband processing said single-channel baseband signals outputted from said smart antenna processing module.

2. The mobile terminal of claim 1, wherein said baseband processing module provides said control information to said smart antenna processing module according to data outputted from one of the plurality of groups of radio frequency signal processing modules before said smart antenna processing module is enabled.

3. The mobile terminal of claims 1 or 2, wherein said smart antenna processing module includes:

a plurality of buffers, for caching received data information, wherein input ends of the plurality of buffers are respectively connected with the plurality of groups of radio frequency signal processing module;

a plurality of weight adjusting modules, each for weighting data outputted from each of the plurality of buffers according to a respectively received weight;

a combiner, for combining the weighted data outputted from each of the plurality of weight adjusting modules and outputting combined data; and

a controller, for receiving data information outputted from the plurality of radio frequency signal processing modules, synchronizing data stream inputted into the smart antenna processing modules according to the control information, and providing said weight to each of the plurality of weight adjusting modules.

4. The mobile terminal of claim 3, wherein said buffers are ring-FIFOs.

5. The mobile terminal of claim 4, wherein a size of each ring-FIFO is one time slot.

6. The mobile terminal of claims 1 or 2, wherein said control information at least includes: a signal used to enable the smart antenna processing module, downlink pilot time slot data and Midamble.

7. The mobile terminal of claims 3, 4 or 5, wherein said control information at least includes: a signal used to enable the smart antenna processing module, a weight-algorithm selecting signal, downlink pilot time slot data and Midamble.

8. The mobile terminal of claim 7, wherein

said controller includes a synchronization controller, for synchronizing sub-frames of the input multi-channel signals by matching the input multi-channel signals with said down-link pilot time slot data of said control information, and for synchronizing time slots of the input multi-channel signals by matching the input multi-channel signals with said Midamble of said control information; and

said controller includes a combining controller, for calculating said weights provided to the weight adjusting module according to the Midambles of both the input multi-channel signals and the control information.

9. The mobile terminal of claim 1, wherein the mobile terminal is applied to cellular communication mobile terminals or other wireless communication terminals, wireless LAN terminals employing one of following standards: TD-SCDMA, GSM, GPRS, EDGE, WCDMA, CDMA IS95, CDMA2000.

10. A method for a mobile terminal with smart antennas comprising:

(a)receiving multi-channel radio frequency signals, and transforming the radio frequency signals into multi-channel baseband signals;

(b)generating control information according to one channel baseband signals within the multi-channel baseband signals;

(c)enabling smart antenna baseband processing, and combining the multi-channel baseband signals into single-channel baseband signals according to the control information received one-off; and

(d)baseband processing said single-channel baseband signals.

11. The method of claim 10, wherein step (b) is completed in a baseband processing module.

12. The method of claims 10 or 11, wherein step (c) further includes:

(c1)caching the input multi-channel baseband signals before enabling the smart antenna baseband processing;

(c2)synchronizing said input multi-channel baseband signals with synchronization information included in the control information according to said control information, after enabling the smart antenna baseband processing;

(c3)calculating weights according to said input multi-channel baseband signals and said control information;

(c4)respectively weighting said cached data according to said calculated weights; and

(c5)combining said weighted data to carry out said baseband processing.

13. The method of claim 12, wherein step (c2) is completed within one channel of a smart antenna processing module.

14. The method of claims 10 or 11, wherein said control information at least includes: a signal used to enable the smart antenna baseband processing, down-link pilot time slot data and Midamble.

15. The method of claims 12 or 13, wherein said control information at least includes: a signal used to enable the smart antenna baseband processing, a weight-algorithm selecting signal, down-link pilot time slot data and Midamble.

16. The method of claims 14 or 15, wherein the step (c2) further includes:

(c21)synchronizing sub-frames of said input multi-channel baseband signals by matching the down-link pilot time slot data of said control information with said input multi-channel baseband signals; and

(c22)synchronizing down-link pilot time slots of said input multi-channel baseband signals by matching the Midamble of said control information with said input multi-channel baseband signals.

17. The method of claim 15, wherein the control information employed in step (c3) is Midamble.

18. The method of claim 10, wherein the method is applied to cellular communication mobile terminals or other mobile wireless communication terminals, wireless LAN terminals employing one of following standards: TD-SCDMA, GSM, GPRS, EDGE, WCDMA, CDMA IS95, CDMA2000.

19. A device for processing multi-channel signals received by smart antennas, comprising:

a plurality of buffers, each used for respectively caching inputted multi-channel signals;

a plurality of weight adjusting modules, each used for weighting data outputted from each of the plurality of buffers according to a respectively received weight;

a combiner, for combining the weighted data outputted from each of the plurality of weight adjusting modules so as to combine said input multi-channel signal into single-channel signals; and

a controller, for receiving said plurality groups of signals, and providing said weight to each of the plurality of weight adjusting modules according to the control information received one-off while synchronizing said multi-channel signals inputted into the device.

20. The device of claim 19, wherein said buffers are ring-FIFOs.

21. The device of claim 20, wherein a size of each ring-FIFO is one time slot.

22. A mobile terminal, comprising:

transmitting means, for transmitting signals to a base-station via uplink; and

receiving means, for receiving radio frequency signals from the base-station via down-link, wherein the receiving means can transform multi-channel signals received by smart antennas in the receiving means to single-channel signals to carry out a baseband processing according to control information received one-off by the receiving means.